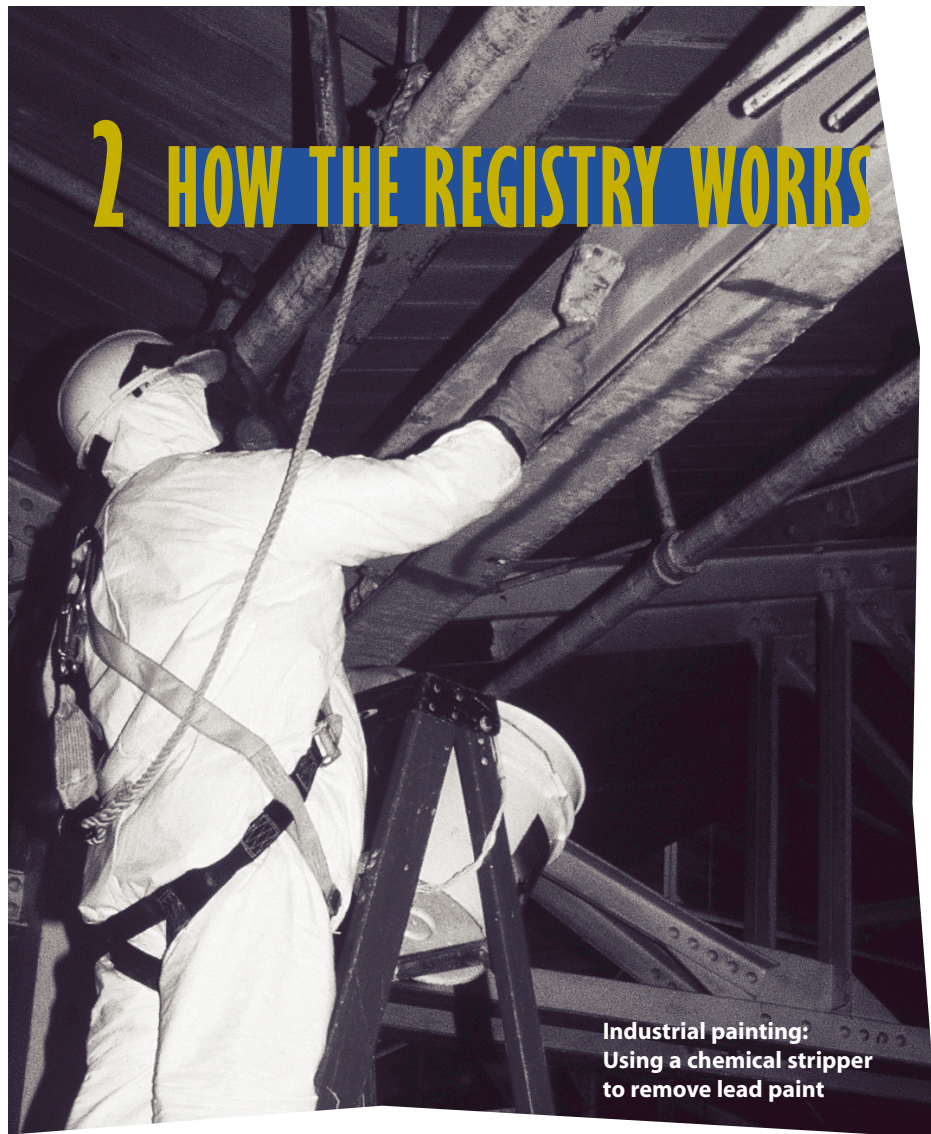


2 HOW THE REGISTRY WORKS



Industrial painting:
Using a chemical stripper
to remove lead paint

This section provides a brief description of the operation of the Registry and management of individual cases of lead poisoning. (See Figure 1)

Reporting Requirement

In 1986, the California Legislature passed a law that created a laboratory-based tracking system for lead poisoning cases in children and adults (Health and Safety Code, Section 124130). Since January 1, 1987, laboratories performing blood lead analyses on California residents have reported BLLs of 25 µg/dl or greater to the CDHS. CDHS is currently pursuing a requirement for the reporting of *all*, not just elevated, BLLs. In anticipation of the new reporting requirements, most laboratories have begun to voluntarily report levels below 25 µg/dl to CDHS.

Reporting Mechanism

In the current manual reporting system, laboratories report blood sample, patient demographic, and employer information on either a standard CDHS Lead Reporting Form (LRF), or other form that contains the same information as the LRF. (See Appendix A, Sample LRF.) CDHS requests that laboratories report BLLs within 72 hours of analysis.

CDHS has developed software that enables laboratories to report BLLs electronically, thus ensuring that data are transmitted more rapidly and efficiently. Currently, seven laboratories report results to CDHS in electronic format (approximately 27% of total reports received by CDHS), and CDHS is working with another 15 laboratories (both in California and in other states) to begin reporting electronically in the near future. Since electronic reporting is more efficient for CDHS and laboratories, it is our goal that 40-50% of reports will come in electronically by the end of 2002.

Initiation of BLL Testing

Blood lead level tests are initiated by a medical provider. An adult may have a BLL test done as part of an employer-sponsored blood testing program. A personal physician may also order a BLL to provide diagnostic information. Occasionally a BLL test is ordered at the patient's request.

Blood Lead Level Reporting & Response

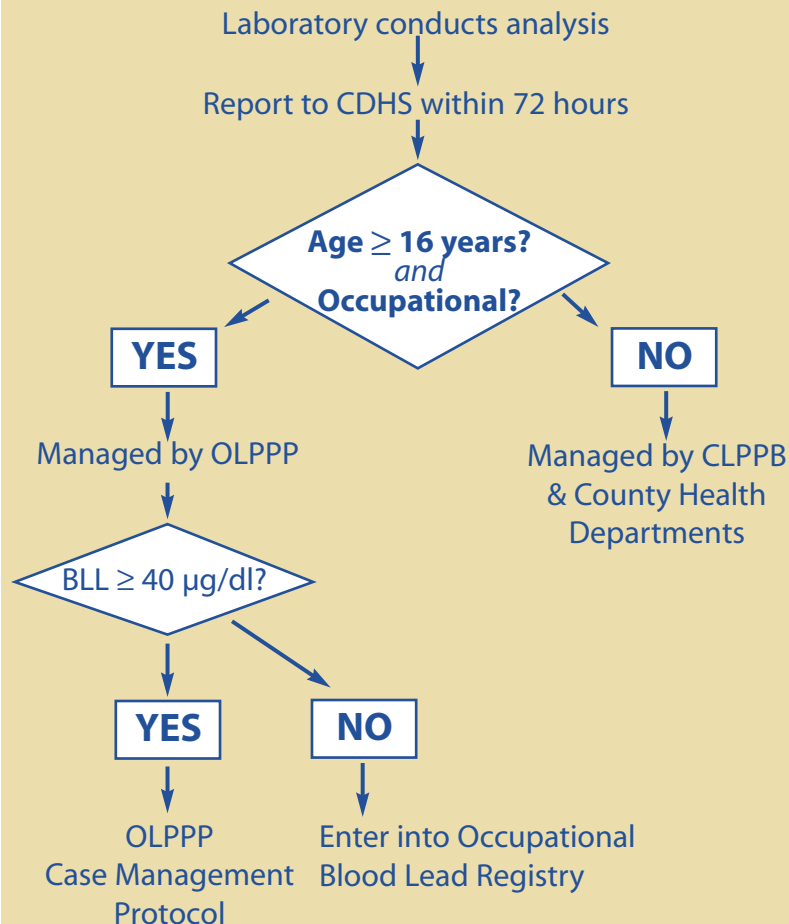


Figure 1

A BLL test performed under the lead standards must be conducted by a laboratory that meets the OSHA requirements for blood lead analysis and is currently listed as an approved laboratory by OSHA.

Data Collection and Processing

The Childhood Lead Poisoning Prevention Branch (CLPPB) in CDHS receives all BLL reporting forms and electronic reports, and forwards reports for individuals 16 years of age and older to OLPPP on a daily basis. OLPPP staff review the incoming hard-copy and electronic reports daily and contact the medical provider or the laboratory to obtain missing patient, employer, physician, sample, and laboratory information. BLLs of 40 µg/dl or higher are verified for occupational exposure and

referred immediately to the OLPPP case management team for follow-up (discussed in more detail below). Reports for non-occupational adult cases, regardless of blood lead level, are forwarded to CLPPB for referral to the county health department. (See Figure 1.) Reports for workers residing or working outside California are forwarded to the appropriate state health department for follow-up. **(Note: if a worker either resides or works in California, OLPPP does the usual follow-up for these cases based on the BLL.)**

OLPPP has developed a customized relational database system to enter and manage BLL data (Elevated Lead Visual Information System, or ELVIS). Patients, employers, and physicians are assigned a unique identifying number, which allows information collected from different sources at different times to be linked. Each employer is also assigned a four-digit Standard Industrial Classification (SIC) code.⁶ For employers with BLL reports of 25 µg/dl or greater, SIC codes are assigned based on information gathered by OLPPP staff in telephone interviews with the employers. SIC codes assigned by interview are reviewed by OLPPP's industrial hygienist to ensure consistency in coding. Employers with all BLL reports below 25 µg/dl are not interviewed. A commercial marketing database is used to assign an SIC code to these employers.

⁶ Standard Industrial Classification Manual 1987. Executive Office of the President, Office of Management and Budget.

Quality Control

The ELVIS database has many built-in features that ensure that data are entered correctly – e.g., that our data accurately track specific workers' BLLs, and attribute these BLLs to the correct workplace and type of exposure. At the time of data entry, ELVIS automatically runs quality control programs to ensure that blood lead results, workers, or employers are not double-entered, and to flag for review and correction other erroneous entries that may occur. For example, upon entry of new results, ELVIS checks for dates that are out of sequence (e.g., an analysis date before the blood draw date). In addition to data-checking that is performed at the time results are entered, detailed quality-control programs are run periodically. These periodic programs check and flag for review potential data entry errors that may have been missed by the quality control performed when results were initially entered. For example, periodic quality control looks for possible reversed first and last names and single results tagged as "unknown employer" for workers who have multiple BLL results with a known employer.

Confidentiality

OLPPP uses several methods to protect the confidentiality of data reported to the Registry. First, ELVIS is maintained on a secure network that allows access to the data only by specific OLPPP personnel. Secondly, the LRFs and other data forms are kept in locked filing cabinets, within a secure (key-card entry access) office suite. Finally, OLPPP does not release data containing personal, employer, or physician identifying information to persons outside OLPPP except when required to by legal subpoena, or as necessary to a treating physician or local health department to ensure appropriate treatment and follow-up of a lead-poisoned individual, or when necessary to assist another agency to carry out its enforcement functions. Aggregate data are available upon written request to OLPPP.

Case Management

OLPPP's case management team initiates intensive follow-up efforts if a worker has a BLL of 60 µg/dl or greater, or when a local health department suspects that a child has been poisoned by lead brought home from a workplace. OLPPP defines a case as take-home lead exposure when the following criteria are met: 1) a child or other household member has a BLL of 10 µg/dl or greater; 2) an adult worker in the household has a BLL of 10 µg/dl or greater; and 3) a source of lead in the workplace has been confirmed.

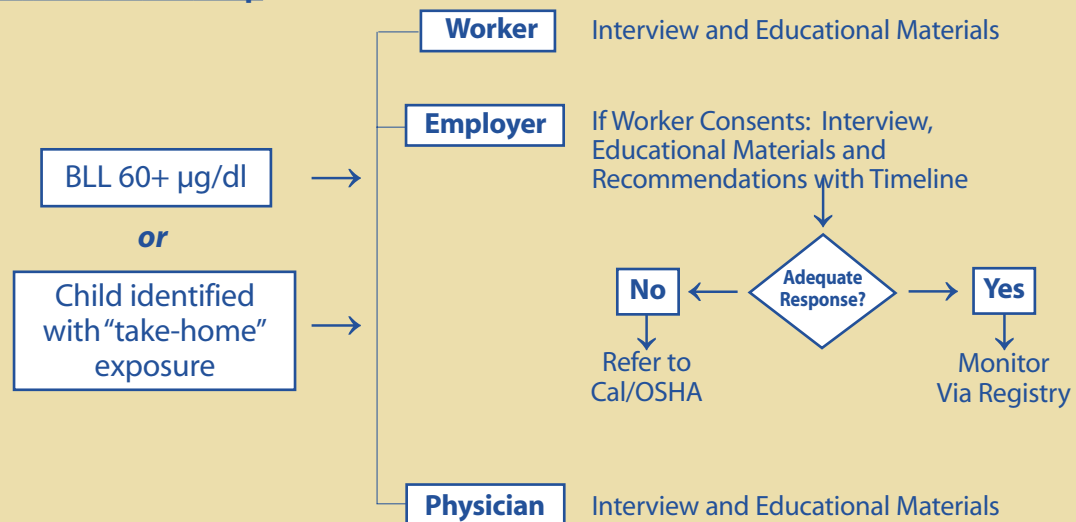
Case management staff contact the worker, employer, and physician by phone and interview each using standardized questionnaires. OLPPP has bilingual staff who interview individuals in Spanish when necessary. If the worker's BLL is less than 80 µg/dl and the test was not sponsored by the employer, OLPPP obtains the worker's consent prior to contacting the employer. If the BLL is at or above 80 µg/dl, the worker's consent to contact the employer is not required. BLLs at or above 80 µg/dl are considered medical emergencies. In these situations, OLPPP has an overriding responsibility to intervene to ensure that other workers are not poisoned.

Workers are contacted by telephone in order to address their concerns about the BLL, find out more about the workplace and work practices, and to identify household members and co-workers at risk. Workers are sent a letter and educational materials including a lead safety video. Educational materials are available in English and Spanish.

The employer is contacted to review the company's lead safety measures, identify the conditions that led to the overexposure, and to provide technical assistance in addressing those hazards. Each employer receives a packet of written material, an educational video, and a detailed letter specifying recommendations with a timeline for improvements. On occasion, OLPPP staff will conduct an on-site investigation. Employers who need on-site assistance are referred to the Cal/OSHA

OLPPP Case Management Protocol

Intensive Follow-up



Modified Follow-up

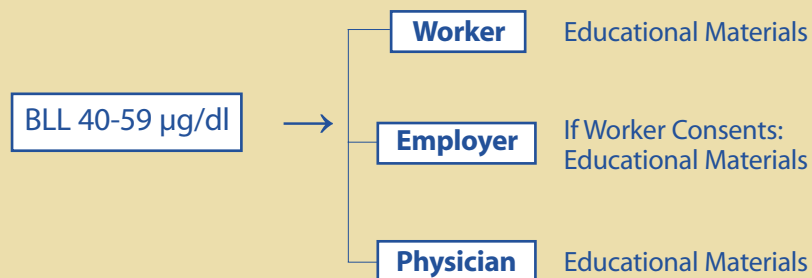


Figure 2

Consultation Service and their workers' compensation carrier. Employers who do not correct serious health and safety hazards may be referred to Cal/OSHA Compliance for enforcement action. Figure 2 shows the flow of case management followed by OLPPP for serious worker (60 µg/dl or greater) and take-home lead poisoning cases.

OLPPP's medical staff contact the physician involved to ensure that the poisoned worker is receiving appropriate care. Physicians who are the health care provider for the employer (in a stated or unstated contractual agreement) are provided information about their duties to the employer and the workers under the lead standards.

OLPPP conducts a modified follow-up of workers with BLLs between 40 and 59 µg/dl (see Figure 2). Workers receive a letter, video, and educational materials on the health effects of lead, how lead poisoning can be prevented, take-home exposure, employer health and safety responsibilities, and workers' legal rights. If the blood test was not done as part of an employer-sponsored medical program, OLPPP requests the worker's consent before sending a similar letter and packet of educational materials to the employer. All physicians receive educational materials as well.

Since 1999, OLPPP has been mailing each of the county Childhood Lead Programs a monthly printout of workers with BLLs between 25 and 39 µg/dl. This enables counties to follow up on possible take-home exposure cases in children of workers. Follow-up activities by the counties are voluntary and not required by either OLPPP or the CLPPB.

Data Analysis

Data are tabulated and aggregated by demographic categories. An abbreviated data summary, which presents the number of reports and individuals by BLL level, is prepared quarterly; no personal identifiers are included. OLPPP also periodically prepares a full report, *Blood Lead Levels in California Workers: Report of the California Occupational Blood Lead Registry*, which summarizes BLL tracking data, and includes demographic information, BLLs by industry, and a discussion of findings.

Dissemination of Data

Quarterly data summaries are forwarded to the National Institute of Occupational Safety and Health (NIOSH). NIOSH compiles quarterly reports from all states that require reporting of BLLs and publishes summary data periodically in the *Morbidity and Mortality Weekly Report* (MMWR). The MMWR is distributed widely to health care and public health professionals throughout the U.S.

OLPPP's periodic report *Blood Lead Levels in California Workers* is distributed to laboratories, employers and physicians reported to the Registry, county Childhood Lead Programs, and other states' Adult Blood Lead Epidemiology and Surveillance (ABLES) programs. The report is also made available to companies who pay the lead poisoning prevention fees that support OLPPP. It is posted on the OLPPP website at www.dhs.ca.gov/ohb.